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EXAMINER
KLIMOWICZ, W

ART UNIT
2754

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Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

See attachments

Office Action Summary

Application No.
08/822,778

Applicant(s)

Indeck

Examiner
William J. Klimowicz

Group Art Unit
2754



☒ Responsive to communication(s) filed on Jul 10, 1998

☒ This action is **FINAL**.

☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

A shortened statutory period for response to this action is set to expire 3 month(s), or thirty days, whichever is longer, from the mailing date of this communication. Failure to respond within the period for response will cause the application to become abandoned. (35 U.S.C. § 133). Extensions of time may be obtained under the provisions of 37 CFR 1.136(a).

Disposition of Claims

☒ Claim(s) 11-17 and 30-51 is/are pending in the application.

Of the above, claim(s) _____ is/are withdrawn from consideration.

☐ Claim(s) _____ is/are allowed.

☒ Claim(s) 11-17 and 30-51 is/are rejected.

☐ Claim(s) _____ is/are objected to.

☐ Claims _____ are subject to restriction or election requirement.

Application Papers

☐ See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.

☐ The drawing(s) filed on _____ is/are objected to by the Examiner.

☐ The proposed drawing correction, filed on _____ is ☐ approved ☐ disapproved.

☐ The specification is objected to by the Examiner.

☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

☐ All ☐ Some* ☐ None of the CERTIFIED copies of the priority documents have been

☐ received.

☐ received in Application No. (Series Code/Serial Number) _____.

☐ received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

*Certified copies not received: _____

☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

☒ Notice of References Cited, PTO-892

☐ Information Disclosure Statement(s), PTO-1449, Paper No(s). _____

☐ Interview Summary, PTO-413

☐ Notice of Draftsperson's Patent Drawing Review, PTO-948

☐ Notice of Informal Patent Application, PTO-152

--- SEE OFFICE ACTION ON THE FOLLOWING PAGES ---

Art Unit: 2754

DETAILED ACTION

Claims 1-10, 18-29 have been cancelled.

Claims 11-17 and 30-51 are currently pending.

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claim 51 is rejected under 35 U.S.C. 102(b) as being anticipated by Mage et al (US 4,979,064).

As per claim 51, Mage et al (US 4,979,064) discloses a thin film recording head comprising at least one pole piece (superconducting pole piece (7 or 7')) that extends across substantially all of the windings of a pancake coil (3).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are

Art Unit: 2754

such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 11-17 and 30-51 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jeffers (US 4,908,724).

As per claim 11, Jeffers (US 4,908,724) discloses a magnetic recording head having a pair of gaps (24, 26) formed between three pole pieces, the center pole piece having a single coil (32) wrapped therearound (i.e., on both sides thereof) for magnetically energizing each of the gaps.

As per claim 12, the pair of gaps (24, 26) comprises a write gap (26) and a preconditioning gap (24) with the preconditioning gap (24) being wider than the write gap (26).

As per claim 13, the gaps (24, 26) are formed between a pole tip of each of the pole pieces having a preselected width (see FIG. 2).

As per claim 14, the pole pieces are aligned (along a direction of tape travel) (see FIG. 2).

As per claim 15, as seen in FIG. 2, the pole pieces comprise a first pole piece P1 (left side pole in FIG. 2 and bottom extending to right side, but not including vertical poles (22, 36)), a helically wound coil (32) overlying P1, a second pole piece P2 (36) overlying a portion of the coil and magnetically coupled to P1 at a medial portion thereof at a center of the coil, and a third pole piece overlying P2 and magnetically coupled to an end thereof.

As per claim 16, P3 is magnetically coupled to P2 through a portion of P1 (see FIG. 2)

As per claim 17, P3 is magnetically coupled to P1 at an end thereof to substantially surround P2 and the coil between them (FIG. 2)

Art Unit: 2754

As per claim 30, the magnetic recording head comprises at least two recording gaps (24, 26) and a magnetic coil (32) for magnetically energizing both of said recording gaps (i.e., record into the magnetic medium the manner in which current flows into winding (32)).

As per claim 31, the two recording gaps (24, 26) comprise a write gap (26) aligned with a preconditioning gap (24).

As per claim 32, the preconditioning gap (24) is wider than said write gap (26).

As per claim 33, the write gap (26) is between about .10 microns and about 0.25 microns in width (see COL. 3, lines 16-18).

As per claim 34, the preconditioning gap is *approximately* 0.5 micron in width (see COL. 3, lines 16-18).

As per claim 35, each of said gaps comprises a pair of pole pieces (P1 and/or P2 and/or P3) surrounding at least a portion of said coil (32) (see FIG. 2).

As per claim 36, the gaps (24, 26) share a common pole piece (36), said head thereby having three pole pieces to form said two gaps (see FIG. 2).

As per claim 37, the pole pieces comprise a first pole piece P1, a second pole piece P2 having said coil wrapped therearound (i.e., on both sides thereof) and having an end thereof magnetically coupled to P1, and a third pole piece P3 having an end thereof magnetically coupled to P2 (FIG. 2).

As per claim 38, P3 is *magnetically* coupled to P2 through a portion of P1 (FIG. 3).

As per claim 39, the coil is a thin film pancake coil.

Art Unit: 2754

As per claim 40, a the recording head comprises at least a first pole piece P1 (left side pole in FIG. 2 and bottom extending to right side, but not including vertical poles (22, 36)), a second pole piece P2 (36), and a third pole piece P3 (22), wherein P2 and P3 are magnetically coupled to P1 at different positions along the length of P1.

As per claim 41, the head comprises a write gap (26) between P1 and P2 and a preconditioning gap (24) between P2 and P3.

As per claim 42, the write gap (26) is aligned with the preconditioning gap (24).

As per claim 43, the preconditioning gap (24) is wider than said write gap (26).

As per claim 44, P3 is connected to an end of P1 (left side pole in FIG. 2 and bottom extending to right side, but not including vertical poles (22, 36)) and P2 is connected to a medial portion of P1 (FIG. 2).

As per claim 45, the coil (32) is for magnetically energizing both of said write and preconditioning gaps.

As per claim 46, P2 is magnetically coupled to P1 through a center of said coil (32) (see FIG. 2).

As per claim 47, P3 is magnetically coupled to P2 through a portion of P1.

As per claim 48, the magnetic recording head having a magnetic coil (32), a first pole piece P1 (left side pole in FIG. 2 and bottom extending to right side, but not including vertical poles (22, 36)) underlying a first half of said magnetic coil (portion of coil between P1 and P2), and a second pole piece P2 (36) overlying the first half of said magnetic coil (portion of coil

Art Unit: 2754

between P1 and P2), the pole pieces P1 and P2 together defining a write gap (26), an extension of P1 (left side pole in FIG. 2 and bottom extending to right side, but not including vertical poles (22, 36)) underlies substantially all of the magnetic coil (i.e., the horizontal leg of P1 as seen in FIG. 2), and a third pole piece P3 (22) that overlies a second half of the magnetic coil (portion of coil between P2 and P3) and P2, the pole pieces P2 and P3 together defining a preconditioning gap (24).

As per claim 49, the coil is a substantially helically wound magnetic coil (32).

As per claim 50, P3 is magnetically coupled to P2 through a portion of P1 (FIG. 2).

As per claim 51, at least one pole piece (P1) that extends across substantially all of the windings of the coil (32).

With regard to claims 11, 30, 40, 48 and 51, Jeffers (US 4,908,724) remains silent with respect to the head being a thin film head (inclusive of a pancake coil formed via thin film methods).

Official notice is taken that magnetic heads of the type disclosed by Jeffers (US 4,908,724) wherein the head is of thin film structure (inclusive of a substantially helically wound pancake coil) are notoriously old and well known in the art.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the magnetic recording head of Jeffers (US 4,908,724) as being a thin film head. The rationale is as follows: one of ordinary skill in the art would have been motivated to provide the magnetic recording head of Jeffers (US 4,908,724) as being a thin film head (inclusive of a

Art Unit: 2754

substantially helically wound pancake coil) in order to produce the head in a batch fabricated manner, ensuring high yield and smaller head construction, as is *well known, established and appreciated in the art*.

With regard to claim 34, assuming that the preconditioning gap width of Jeffers (US 4,908,724) cannot be considered to be "approximately" .5 micron in width, Official notice is taken of the fact that it is notoriously old and well known in the magnetic head art to routinely modify a magnetic head structure in the course of routine optimization/ experimentation and thereby obtain various standard optimized relationships including those set forth in claim 34.

It would have been obvious to a person having ordinary skill in the art at the time the invention was made to have had the magnetic head of Jeffers (US 4,908,724) satisfy the relationships set forth in claim 34. The rationale is as follows: one of ordinary skill in the art would have been motivated to have had the magnetic head of Jeffers (US 4,908,724) satisfy the relationships set forth in claim 34 in order to optimize the bias field and further since it is notoriously old and well known in the magnetic head art to routinely modify a magnetic head structure in the course of routine optimization /experimentation and thereby obtain various standard optimized relationships including those set forth in claim 34. Moreover, absent a showing of criticality (i.e., unobvious or unexpected results), the relationships set forth in claim 34 is considered to be within the level of ordinary skill in the art.

Art Unit: 2754

Additionally, the law is replete with cases in which when the mere difference between the claimed invention and the prior art is some range, variable or other dimensional limitation within the claims, patentability cannot be found.

It furthermore has been held in such a situation, the Applicant must show that the particular range is critical, generally by showing that the claimed range achieves unexpected results relative to the prior art range. In re Woodruff, 919 F.2d 1575, 1578, 16 USPQ2d 1934, 1936 (Fed. Cir. 1990).

Moreover, the instant disclosure does not set forth evidence ascribing unexpected results due to the claimed dimensions. See Gardner v. TEC Systems, Inc., 725 F.2d 1338 (Fed. Cir. 1984), which held that the dimensional limitations failed to point out a feature which performed and operated any differently from the prior art.

Response to Arguments

5. Applicant's arguments filed June 4, 1998 and the declaration filed July 10, 1998 have been fully considered but they are not persuasive.

The Applicant allege that Jeffers (US 4,908,724) does not show a thin film magnetic head, and as such Jeffers (US 4,908,724) cannot anticipate the claimed invention. The Applicant further allege that even if it were obvious to provide the magnetic recording head of Jeffers (US 4,908,724) being formed in a thin film manner, the limitations of the claims are not met by the Jeffers (US 4,908,724) patent.

Serial Number: 08/822,778

Art Unit: 2754

As set forth in the rejection, supra, the Examiner readily admits that Jeffers (US 4,908,724) does not explicitly provide for a magnetic recording head formed by thin film methods (i.e., a "thin film" recording head), but *steadfastly* maintains that magnetic heads of the type disclosed by Jeffers (US 4,908,724) wherein the head is of thin film structure (inclusive of a substantially helically wound pancake coil) are *notoriously old and well known in the art for their fabrication and high yield advantages*.

Given the general knowledge within the art at the time the invention was made, the Examiner maintains that it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the magnetic recording head of Jeffers (US 4,908,724) as being a thin film head in order to produce the head in a batch fabricated manner, ensuring high yield and smaller head construction, as is *well known, established and appreciated in the art*.

The Applicant's allegation that even assuming if it were obvious to provide the magnetic recording head of Jeffers (US 4,908,724) being formed in a thin film manner, the limitations of the claims are not met by the Jeffers (US 4,908,724) patent have clearly been refuted by the rejection as delineated in the paragraphs, supra. Note the *only difference* between the *claimed invention* and Jeffers (US 4,908,724), is that the instant application forms its head via thin film technology and Jeffers (US 4,908,724) remains silent with such thin film fabrication. However, as clearly shown by the Examiner above, such a difference, as set forth in the context of the *claimed invention*, is non-patentable.

Art Unit: 2754

The declaration submitted by the Applicant has been considered as well, however, it doesn't overcome the nonpatentable distinction between the *invention, as claimed*, and the prior art, considered as a whole to one having ordinary skill in the art.

Conclusion

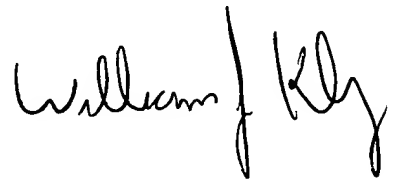
6. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Art Unit: 2754

7. Any inquiry concerning this communication or earlier communications from the Examiner should be directed to William J. Klimowicz whose telephone number is (703) 305-3452 (fax number (703) 308-9051 or (703) 308-9052).

Any inquiring of a general nature or relating to the status of this application should be directed to the Group receptionist whose telephone number is (703) 305-3900.

A handwritten signature in black ink, appearing to read "William J. Klimowicz". The signature is written in a cursive, flowing style.

William J. Klimowicz

Patent Examiner

Art Unit 2754

WJK

August 17, 1998